

## Structural Health Monitoring System



Fibre Optic Sensing (FOS) technology is the solution to incapability of traditional electrical strain gauges in long-term Structural Health Monitoring (SHM) of buildings and infrastructures. FOS aids designers in development of structures with higher utility and lower construction cost. FOS also provides a 24/7 SHM function which reduces cost of ownership of structures by reducing unnecessary routine maintenance, increasing availability and extending lifespan. Many large structures nowadays equip with SHM systems.

FOS has many advantages over the traditional electrical system such as:

- Suitable for long-term permanent SHM: monitor structure during construction stage and over whole lifespan
- No calibration needed
- One cable can have hundreds of the Sensors
- Simple installation
- Cable can run kilometres, no length limit
- FOS uses light signal, no electrical sparking, etc

SHM system consists of fibre optic sensors and data loggers for various applications.



50~6000 Hz interrogator



Field Pelikan™ interrogator



FBG bare sensor



Surface bondable sensor



Long gauge surface mountable and RC embeddable sensor



Embeddable steel rebar sensor



Cable sensor

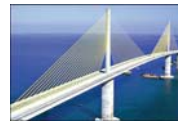


Vibration sensor



Distributed strain sensor

### Application Domains:



New and existing bridges



High-rise buildings



Tunnels



Geostructures



Offshore oil rigs



Steel structures



Aerospace and military



Wind energy

### System Specifications:

	Typical	Premium
Strain range	±2,000 $\mu$ strain	±20,000 $\mu$ strain
Strain resolution	1 $\mu$ strain	0.2 $\mu$ strain
Operation temp.	0~50°C	-50~80°C
Scan frequency	1 Hz	6000 Hz
Power supply	Battery / Mains	

Specifications subjected to change

### About FOSTA's products and services:

FOSTA is a hi-tech instrumentation company for structural engineering. Its products and services are:

1. Structural Health Monitoring (SHM) using fibre optic sensor
  - Design, supply and install various FBG sensors
2. Distributed Temperature System (DTS) and Distributed Temperature and Strain System (DTSS)
3. Structural and Geotechnical instrumentation and monitoring
  - Real time, global access, large data mgmt
4. Structural Strengthening Using FRP Wrap
  - Design, supply and install glass and carbon fibre reinforced polymer (FRP) wrap for structural repair, strengthening, and explosion/seismic protection